

### ABSTRACT

The invention provides low temperature NO<sub>2</sub> trap compositions useful for adsorbing NO<sub>2</sub> from a gas stream at lower temperatures, and releasing the NO<sub>2</sub> at higher temperatures.

The low temperature trap compositions are useful for incorporation into a diesel exhaust  
5 system equipped with a soot filter. The NO<sub>2</sub> from the diesel exhaust can be stored when the exhaust temperature is cool, e.g., during startup and at times of low load, and released when the exhaust is at higher temperatures. The released NO<sub>2</sub> serves as an effective oxidant for the combustion of soot deposited on the soot filter. These temperatures are significantly lower than those required for the combustion of soot using  
10 O<sub>2</sub> as an oxidant. The methods of the invention thereby provide a method for regenerating the soot filter within operating temperature ranges typical of diesel engine exhaust systems.